REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The rejection of claims 139, 140, 142-148, 151, 161, 162, 167, 175, 179, 180, 182, 183, 185-191, 194, 204, 205, 210, 218 and 222-224 under 35 U.S.C. §102 as allegedly anticipated by Tenorio '030 is respectfully traversed.

The Examiner's supporting comment merely quotes applicants' claim language followed by a brief parenthetical reference to certain elements and/or portions of text in Tenorio. There is no explanatory rationale as to how the briefly identified few elements/text segments of Tenorio could even arguably teach, let alone suggest, the quoted claim elements. For the most part, Tenorio does not even use the same or similar language – and even where a common word might be found, Tenorio uses it in an entirely different sense and context.

It appears that Tenorio has been perhaps discovered and "applied" to the applicants' claimed subject matter simply by using some sort of word-based search engine protocol.

In the discussion below, the applicants have attempted to reply as well as possible to this style of rejection by simply following the Examiner's allegations of anticipation at pages 3-6 *seriatim* with explanations as to why the Examiner's assertions of anticipation are clearly erroneous.

There is nothing in Tenorio regarding internal mechanics of directories or data-bases – that hasn't existed for 20 years prior to Tenorio. Tenorio does not teach or suggest that directory objects are disassembled and have their attributes organized for identity, presence, messaging – based on internal intelligent functions within the repository itself – functions that are now deemed necessary by the applicants to support restrictions faced with current modern-day systems.

Applicants' claimed invention provides a "directory service" – that is the repository itself – and within the repository, there are new features beyond that of merely storage, indexing, search and reference data.

The fundamental principle of Tenorio's repository is data storage of objects and data – not intelligent functional repositories based on identity, presence and internal transactional messages which organize attributes based on the properties of the attributes according to system use.

The applicants' claimed invention requires intelligent directory modules "as part of" the directory system. By contrast, virtual directories (and Tenorio) only teach the "use of" directories and databases with cross-references (as per the still earlier X.500 standards and databases that web-based URIs use – all mid-1990's prior art) and a schema as specified in the prior art United Nations SPSC.

From a point of view of the X.500 distributed directory standards (circa 1985-88), that directory was defined with information objects to do exactly this. Tenorio thus describes merely international standards from 16 years prior. In terms of the data model defined by Tenorio, this is very similar to the United Nations part code catalogue provided in the mid-1990s.

Tenorio does not disclose any identity management or presence management functions or data organization principles "within" the repository.

The general outline of Tenorio states that one or more directory/database/file repositories can be used to share managed product, buyer and seller information (schema). Tenorio also declares that the managed information (schema) contains cross-referencing information and that a search mechanism is used to obtain one or more information items from the repository(s). The Tenorio electronic commerce system uses database and/or directory repositories and a shared search/meta gateway similar to that of many prior art commercialized "virtual directory" products. Tenorio describes data management functions within the database or directory service.

The applicants' claims describe intelligent processing modules within the directory service itself to manage specific attribute types of object data beyond that of normal database or directory product schema processing.

Intelligent directory modules claimed by applicants relate to specific processing functions performed ***within*** the directory for the purpose of identity management, presence and (internal) message processing.

In addition, the applicants' directory service dismantles its directory object schema and places the selected attribute "types" in different attribute segments for each of its intelligent modules. These modules are the identity, presence and messaging modules referred to above. Identity attributes based on the respective module's policy are stored in the identity management attribute segment(s). Specialized integrated circuits can also be used to hold and process specific attribute sets (types) for specific intelligent modules.

This functionality is not found in traditional database and directory schema storage and retrieval systems – such as Tenorio.

With respect to the first recited step of applicants' claim 139, Tenorio discloses in Fig. 2, elements 46 and 62, a directory schema which can reside in a file type directory or LDAP directory. The schema relates to that used by Tenorio's electronic commerce application. The schema disclosed cites (42) Industry Standard Schema as one of the top entries acknowledging that such a schema has been commonly defined in one or more international and industry specific standards. (See X.500 / LDAP and UNSPSC and UDDI schema with which such schema would align, (62) cites "other schema"

which, of course, would be other information defined by electronic commerce users for storage in the directory.)

Tenorio at 5:31-55 merely describes the common properties of standardized directory information that represents buyers, sellers and product objects. He also says that said product objects may have attributes referencing associated buyer and seller information. The text and diagram also specify "industry standard" schemas.

However, Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

With respect to the second recited step of applicants' claim 139, Tenorio at 7:8-41 merely describes the common properties of directory object instances which can be named using natural names or with unique numeric identifiers. Such object naming and identification is a common property of existing database and directory services. It is not referred to or claimed by the applicants.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

With respect to the third recited step of claim 139, Tenorio at 6:63 *et seq.* merely describes the common properties and directory services operations on X.500 / LDAP object classes and sub-classes. At 7:41 *et seq.*, Tenorio describes the "meta" properties of data objects which are the same in principle (class related), but have different schema syntaxes. Tenorio describes "translational" functions of data based on the knowledge that (e.g.) "Location" = "Place". This would be commonly referred to as "class related" or a "symbolic matching and replacement" process. At 6:21-44, Tenorio describes a search on a database or directory using an identifier attribute(s) such as a name, a unique (numeric) identifier or a web-based URI.

Such are merely common attribute searching properties of a commercial relational database, standard file systems and X.500/LDAP directory products.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type. Additionally, the applicants' claimed invention permits such intelligent functions to be directly enabled by the external directory service applications.

With respect to the fourth recited step of claim 139, Tenorio at 7:8-41 merely describes accessing and searching multiple directories and databases (via a gateway function) using a search criteria which includes object data, attributes as pointers to

other databases and directories, attributes as numeric identifiers (numbering scheme). Repeated navigation actions on the directory are possible as the data may not reside in the main directory, but "[t]his data may be stored in a seller database." Note: Tenorio's reference "to the Identified type of directory service" is in the context of product, buyer- or seller-owned directory services and not in the same context as applicants' intelligent modules.

Tenorio describes a meta directory search capability which acts as a "single view" to a collection of directories and databases entries which can use attributes containing references for information entries held in other database/directory services.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type. Additionally, applicants' claimed invention permits these intelligent functions to be directly enabled by external directory service applications.

With respect to the fifth recited step in claim 139, Tenorio at 7:8-41 describes merely accessing and searching multiple directories and databases (via a gateway function) using a search criteria which includes object data, attributes as pointers to other databases and directories, attributes as numeric identifiers (numbering scheme). Repeated navigation actions on the directory are possible as the data may not reside in

the main directory, but "[t]his data may be stored in a seller database." Note: Tenorio's reference "to the identified type of directory service" is in the context of product, buyer- or seller-owned directory services and not in the same context as applicants' intelligent modules.

Tenorio describes a meta directory search capability which acts as a "single view" to a collection of directories and databases entries which can use attributes containing references for information entries held in other database/directory services.

Tenorio at 10:23-34 describes the use of database or directory attributes "having certain product or seller 'values'" that have been indexed and known internally to the database or directory service. In this case, the attributes can be of any type, but can have common values. Tenorio states that the use of indexing on attribute "values" and using such indexing principles, the database or directory service "knows the location" of said attributes "without searching the entire (database or directory) table."

The interpretation made from this Tenorio disclosure is merely that a single table within the/a database contains every object and all their attributes, and commonly used forms of indexes (such as hash, Btree or hash random) are used to find the attributes required within the table.

It should be noted that commercial databases and directories currently have inbuilt indexing features to provide rapid searches on attribute values held in tables, and Tenorio is describing these existing features.

The applicants' claimed directory service dismantles its directory object schema and places the selected attribute "types" in different attribute segments for each of its intelligent modules. These modules are the identity, presence and messaging modules referred to above. Identity attributes based on the respective module's policy are stored in the identity management attribute segment(s). This functionality is not found in traditional database and directory schema storage and retrieval systems.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

In addition, the applicants' claimed invention permits such intelligent functions to access said attributes, as owned by that module, without the need to access other attributes used by other intelligent modules.

With respect to claim 140, in Tenorio's Fig. 2, elements 46 and 62 disclose a directory service schema which can reside in a file directory or LDAP directory which relates to an electronic commerce application. The schema disclosed cites (42)

Industry Standard Schema as one of the top entries indicating that such a schema has been commonly defined in, for example, international and industry specific standards. See X.500 / LDAP and UNSPSC and UDDI schema with which such schema would align. Item (62) cites "other schema" which, of course, would be other information defined by electronic commerce users for storage in the directory.

Tenorio at 5:31-53 describes the common properties of directory objects and that they represent buyers, sellers and product objects where products/objects can have attributes associated with buyers and sellers. The text and diagram also specify "industry standard" schemas.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging on which object information is segregated according to the intelligent function's use.

Tenorio at 9:26-37 describes repository and/or repositories with common data (product and seller data).

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

With respect to claim 142, Tenorio's Fig. 1 is described at 2:20 in the Brief Description of the Drawings as "Fig. 1 illustrates an example of an **electronic commerce** system..." Tenorio makes no reference to an embedded integrated circuit.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

In addition, applicants' invention permits such intelligent modules access to said attributes, as owned by that module, without the need to access other attributes used by other intelligent modules – and that such attributes of a specific intelligent module can be processed within a specialized and dedicated integrated circuit.

With respect to claim 143, in Tenorio's Fig. 2, elements 46 and 62 disclose a directory service schema which can reside in a file directory or LDAP directory and relates to an electronic commerce application. The schema disclosed cites (42) Industry Standard Schema as one of the top entries indicating that such a schema has been commonly defined. Fig. 2 does not define intelligent modules or the logical segments of memory containing object attribute data corresponding different intelligent modules as claimed.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

With respect to claim 144, in Tenorio's Fig. 2, elements 46 and 62 disclose a directory service schema which can reside in a file directory or LDAP directory and relates to an electronic commerce application. The schema disclosed cites (42) Industry Standard Schema as one of the top main entries indicating that such a schema has been commonly defined in, for example, international and industry specific standards. See X.500 / LDAP and UNSPSC and UDDI schema with which such schema would align. Item (62) cites "other schema" which, of course, would be other information defined by electronic commerce users for storage in the directory.

Tenorio at 7:8-41 describes accessing and searching multiple directories and databases (via a gateway function) using a search criteria which includes object data, attributes as pointers to other databases and directories, attributes as numeric identifiers (numbering scheme). Repeated navigation actions on the directory are possible as the data may not reside in the main directory, but "[t]his data may be stored in a seller database."

Tenorio describes a meta directory search capability which acts as a "single view" to a collection of directories and databases which can use referential information held in the respective database/directory objects.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

With respect to claim 145, Tenorio at 7:8-21 describes accessing and searching multiple directories and databases for product and seller information for the buyer using search criteria which includes object data with attributes as pointers to other directories and databases, attributes as numeric identifiers (numbering scheme) and repeated navigation of the directory(s).

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

In addition, applicants' intelligent modules can access said attributes and, using an internal policy, relate such attributes to another attribute or sets of other attributes (in other objects) within the directory service.

With respect to claim 146, Tenorio at 7:8-21 describes accessing and searching multiple directories and databases for product and seller information for the buyer using a search criteria which includes object data with attributes as pointers to other directories and databases; attributes as numeric identifiers (numbering scheme); and repeated navigation of the directory(s).

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging, for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type.

Tenorio also does not disclose how attributes within the directory can be related through intelligent functions and where a sponsored attribute is added or changed, this attribute will be propagated using an intelligent directory module policy to other directory object attributes within the directory service.

With respect to claim 147, grouping objects under common naming properties is a standard function supported by LDAP/X.500 directory services.

The applicants' claim relates to the name grouping principles of a directory service with intelligent modules comprising identity, presence and messaging and specialized attribute type memory segments.

With respect to claim 148, the naming properties of objects is a standard function supported by LDAP/X.500 directory services.

The applicants' claim relates to the naming properties of a directory service with intelligent modules comprising identity, presence and messaging and specialized attribute type memory segments.

With respect to claim 151, Tenorio at 3:29-33 states:

> manner. The multiple one-to-one (one buyer **20** to one seller **30**) searches that this process requires are inefficient and expensive because of the large amount of searching involved in finding a product and because the various offerings of that product by different sellers **30** may not be easily compared.

The text quoted describes a problem – however, it is followed with:

> Alternatively, multiple sellers **30** may be grouped in an electronic marketplace according to the products they provide and a buyer **20** may search the offerings of the multiple sellers **30** at a single web site. However, if buyer **20** wishes to obtain

Tenorio describes the solution to the problem as grouping of objects in a directory service according to market place or product sets – which is a common practice in a directory design .

Tenorio at 10:35- 50 states:

> If a query is submitted that also specifies a value of one or more non-indexed product attributes (for example, a query for pens manufactured by ABC Company, if the manufacturer fields **156** in column **152***c* are not indexed) and/or seller attributes, then the associated database management system may perform a search of database **32** and/or repository **34** for products that include the specified value of the one or more non-indexed attributes or seller attributes. However, such a search may be limited to the products already identified (using the index) as including specified values of indexed attributes (for example, pens having black ink and a medium tip) and/or seller attributes that are also included in the search. Therefore, the amount of time required to perform the search may be reduced even though one or more of the product attribute values or seller attribute values that are searched for are not indexed.

This Tenorio text describes methods of using database indexed data (or not) in order to reduce time for database searches.

The cited Tenorio text does not disclose internal directory services configuration and management data to configure object attribute data according to intelligent directory services modules.

With respect to claim 161, Tenorio discloses in Fig. 2, elements 46 and 62, a directory schema which can reside in a file type directory or LDAP directory. The schema relates to that used by Tenorio's electronic commerce application. The schema disclosed cites (42) Industry Standard Schema as one of the top entries acknowledging that such a schema has been commonly defined in one or more international and

industry specific standards. (See X.500 / LDAP and UNSPSC and UDDI schema with which such schema would align. (62) cites "other schema" which, of course, would be other information defined by electronic commerce users for storage in the directory.)

Tenorio at 5:31-55 describes the common properties of standardized directory information and that they represent buyers, sellers and product objects. Tenorio also says that product objects may have attributes referencing associated buyer and seller information. The text and diagram also specify "industry standard" schemas.

Tenorio at 9:26-37 states:

> responsive to a buyer's search. Alternatively, pointers associated with a class may direct GCD server **40** to one or more particular storage locations. In addition, if multiple repositories **34** are used, each repository **34** may include identical product data, some common and some different product data, or entirely different product data. Furthermore, repository or repositories **34** may store the product data in any appropriate format using any appropriate storage medium. Moreover, it should be noted that although shared product data repository is described as including static product data, seller databases **32** may also include static product data. This static product data may or not be made available to buyers **20** using GCD **42**.

This Tenorio text discloses that one or more repositories may be used with one or more repositories holding common data and one or more repositories holding different data and that different data may or may not be accessible to buyers.

The cited Tenorio text does not disclose internal directory services for managing the plurality of attribute memory segments associated with intelligent directory modules.

With respect to claim 162, composite attribute functionality is a standard object definition (schema) capability supported by LDAP/X.500 directory services standards.

The applicants' claim relates to a directory service with intelligent modules comprising identity, presence and messaging and specialized attribute type memory segments and the use of X.500/LDAP composite attributes within such segments.

With respect to claim 167, Tenorio at 6:45-62 states (GCD is a global content directory):

> GCD **42** may be implemented using the lightweight directory access protocol (LDAP), which enables directories to be provided using the tree-like structure described above. However, any other appropriate technique or protocol for creating GCD **42** may alternatively be used and GCD **42** may have any appropriate structure. Furthermore, GCD **42** may be an object-oriented directory (which is also provided by LDAP) such that each class in directory structure **44** includes the attributes of parent classes in which the class is a sub-class. In this embodiment, a product class listed at the end of a branch of the tree structure includes all of the attributes of its parent classes in the branch. Furthermore, each product included in a database **32** may be an object that includes all the attributes of the classes in which the product is included. Thus, when a search is performed from a class at the end of a branch of directory structure **44**, the search query may automatically include any appropriate attributes of parent classes of the class.

Tenorio at 6:45-62 describes the common properties and directory services operations of X.500 / LDAP object classes and sub-classes and how sub-classes are handled from superior (parent) class definitions within directories.

The applicants apply multi-object management (this goes beyond searching over parent/child object classes) in that it allows collections of objects regardless of class type and hierarchy to be assessed by the intelligent directory modules according to configurable management policies.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging which can process collections of objects (regardless of class).

With respect to claim 175, see the response to claim 167 just above – the same point is made re: classes and sub-classes apply and their relationships being of a type class and type sub-class.

Applicants apply multi-object management (which is beyond that of searching over parent/child object classes) in that it allows collections of objects regardless of class type and hierarchy to be assessed and searched using an internal relationship function by the intelligent directory modules.

With respect to claim 179, see above regarding claim 142.

Tenorio's Fig. 1 is described at 2:20 in the Brief Description of the Drawings as "Fig. 1 illustrates an example of an **electronic commerce** system..." The figure does not illustrate an embedded Integrated Circuit – see above.

Tenorio does not disclose a directory service with intelligent directory service modules comprising identity, presence and messaging for which each and every information object is dismantled and stored in dedicated attribute memory segments and processed according to the intelligent module's type, and for such attributes of a specific intelligent function to be processed within specialized and dedicated integrated circuits referred to as "attribute processors" for said intelligent modules.

With respect to claim 180, see above regarding claims 142 and 179.

The rejection of claims 141 and 184 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Roy '893 is also respectfully traversed.

Fundamental deficiencies of Tenorio have already been discussed with respect to parent claims. Roy does not supply those deficiencies.

Here, the Examiner admits that Tenorio does not disclose customized virtual machines. Indeed, the Examiner's discussion does not even recognize the fact that these claims require the intelligent directory service modules to provide customized virtual machines within the claimed directory service. Furthermore, the Examiner's discussion obviously confuses "virtual memory" with a "virtual machine". Virtual machines are, of course, well known *per se* in the computer art – and they clearly involve a lot more than "virtual memory." If the Examiner has questions about the

common understanding in the art of a "virtual machine," it is respectfully suggested that a few inquiries be made via internet search engines.

The rejection of claims 150 and 193 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Cook '726 and Murthy '039 is also respectfully traversed.

Again, fundamental deficiencies of Tenorio have already been discussed with respect to parent claims – and neither of the secondary and tertiary references provides those deficiencies.

Here, the Examiner admits that Tenorio does not disclose an object segment for storing distinct name binding rules and access control information for directory objects. However, once again, the Examiner's paraphrasing of the actual claimed subject matter omits some of the claimed subject matter. For example, claim 150 requires a first segment for storing distinct name binding rules, access control information, object schema and management data for said directory objects. It should also be recognized that claim 150 is referring back to the organized logical segments of memory earlier defined in parent claim 139 where each logical segment of memory respectively corresponding to a directory service module – and each such segment must contain object attribute data needed by that respectively corresponding directory service module to perform its intelligent service in response to an incoming request. None of this is disclosed by any of the cited references.

Merely because the Examiner has used a search engine to locate two references which happen to mention "name binding rules" and "access control information" in entirely different contexts does not, of course, in any way suggest that the particular features claimed by the applicants would have been "obvious" to the hypothetical person of only ordinary skill in the art in the context of the claimed subject matter – especially without any use of hindsight (i.e., using applicants' claims as a search engine template).

The rejection of claims 149, 152, 153, 168-174, 192, 195, 196 and 211-217 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Murthy is also respectfully traversed.

Fundamental deficiencies of these references have already been noted above with respect to parent and other claims – and such deficiencies are not here supplied even by the Examiner's attempts to do so.

Here, the Examiner admits that Tenorio does not disclose the entirety of applicants' claims 149 and 152. For these admitted deficiencies, the Examiner relies upon various passages of Murthy as identified at pages 10-11 of the latest office action. However, Murthy does not teach a relevant directory system. Instead, Murthy simply teaches mechanisms for uniform access control in a database system – to facilitate uniform access control to data managed by a database server that can emulate hierarchically organized systems even if the data is not accessed through hierarchical or

relational access mechanisms. Indeed, Murthy even contrasts hierarchical approaches to relational database systems that store information in tables comprised of rows and columns (e.g., see 2:31 *et seq.*). Murthy seeks to emulate a hierarchically organized system.

The Examiner relies upon Murthy at 3:4-16; 4:4-8; 4:56-5:14 and 5:34-37, *et seq*. However, 3:4-16 discusses only relationally organized systems that emulate hierarchically organized systems, etc. Murthy at 4:4-8 describes one embodiment of the emulation as including access control data that defines consistent user access privileges – but the mere presence of some kind of access control data in the emulation context is essentially irrelevant with respect to the applicants' claimed invention. Murthy at 4:56-5:14 refers to Fig. 2 and, again, one embodiment for emulation. For example, records in the access control repository 50 identify a set of one or more users or groups of users and access privileges therefor – managed by a database server 202 in a light directory access protocol (LDAP) server that follows the LDAP protocol – hardly a teaching or suggestion of the applicants' claimed invention, but instead reference to emulating earlier types of directory services as explained above and in applicants' specification concerning the prior art. Finally, Murthy at 5:34-37 *et seq*. simply notes that in this emulation embodiment, hierarchical access mechanisms determine user access privileges – which are based on examining access control data 226 and/or the access control repository 250. Indeed, this text also describes relational access

mechanisms as providing relational access to content structures including a query execution mechanism that computes queries written in SQL or another database language. It is also mentioned that the relational access mechanisms 210 do not use hierarchy structures 228 to process database statements or compute queries. Rather, in the course of providing access to the nodes, relational access mechanisms 210 determine user access privileges.

The Examiner does not give an explanation or rationale as to how these cited snippets from Murthy allegedly teach the particularly claimed subject matter in the rejected claims – in appropriate context. That is, as required by 35 U.S.C. §103, the applicants' claimed subject matter must be considered "as a whole" when considering whether or not it would have been "obvious" to the hypothetical person of only ordinary skill in the art at the relevant time without use of hindsight. Merely finding some similar wording used in the context of Murthy's emulation system does not teach or suggest the claimed subject matter.

Furthermore, the Examiner's attempt to find motivation for combining Murthy with Tenorio merely begs the question. The Examiner asserts that it would have been "obvious" to make the combination "since Murthy's security data would have enabled Tenorio's overall system to provide uniform access control to relationally organized data and hierarchically organized data." Where is there any suggestion in either reference that Tenorio's overall system lacks the ability to provide uniform access control to rela-

tionally organized data – and/or hierarchically organized data? Unless there is some perceived defect in the Tenorio system in this regard, why would those having only ordinary skill in the art ever be motivated to "combine" these two references – and what would result if they were combined? In effect, the Examiner has merely quoted Murthy's patent title as justification for finding it obvious to have combined these two references. That is not a persuasive rationale.

At various places, the Examiner refers to Murthy as disclosing an "intelligent" directory service. However, that description does not appear to be present in Murthy. If it is, the Examiner is respectfully requested to identify exactly where it might be found in Murthy. Indeed, the Examiner's own discussion of Murthy refers to the X.500/LDAP operational attributes, user operational attributes, etc. Of course, such well known old prior art has already been admitted and discussed in the applicants' specification (e.g., see the second paragraph of the background section on page 1 of the applicants' specification). Accordingly, even if Murthy is for some reason or the other "combined' (even in some hindsight fashion as the Examiner apparently has in mind), one would still not arrive at the applicants' claimed subject matter.

Here again, the Examiner's assertion that certain quoted claim language (albeit such is quoted without the use of quotation marks) is somehow to be found at cited passages in Murthy appears clearly erroneous. For example, as to claim 168, the Examiner asserts that Murthy at 4:50-64 somewhere discloses two or more objects

including a sponsoring object and one or more sponsored objects. However, Murthy at 4:50-64 is describing Fig. 2's system architecture emulation and explaining that access control data is used to determine user access privileges. It is noted that access control data may be data that explicitly specifies user access privileges or may be data that refers to a source of access control data or a combination thereof – and may contain identifiers or references to records in access control repository 250. For a given set of users or groups of users, access control data 216 and 226 reflect consistent user access privileges by referring to the same records in repository 250. How does this purportedly disclose the claim 168 subject matter which, when considered in context, refers to modules for accessing and managing a plurality of memory segments (see parent claim 161) including a multi-object management module for processing two or more objects as an entity (parent claim 167), wherein said two or more objects include a sponsoring object and one or more sponsored objects (claim 168)? The applicants' claimed subject matter is supposed to be construed from the viewpoint of one having skill in the relevant art and in context with the applicants' accompanying specification. The cited passage in Murthy appears to be essentially irrelevant to the claimed subject matter.

Similar comments are appropriate to most, if not all, of the remaining assertions in this section of the office action. Given the fundamental deficiencies already noted with respect to both of these references, especially with respect to parent claims, it is

not believed necessary at this time to detail further deficiencies of this allegedly "obvious" combination of references with respect to other aspects of the rejected claims. Suffice it to note that, as a matter of law, it is impossible to support even a *prima facie* case of obviousness unless the cited art teaches or suggests each and every feature of the rejected claims.

The rejection of claims 165, 166, 208 and 209 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Harvey WO '147 is also respectfully traversed.

Here, the Examiner once again admits that Tenorio does not disclose any of the subject matter recited in these rejected claims. To supply this admitted deficiency, the Examiner now relies upon Harvey. Of course, Harvey has been discussed earlier in the record. It does represent relevant prior art, but once again in a completely different context from the claimed invention here taken as a whole. Furthermore, the cited passage of Harvey (page 32, line 12 through page 33, line 3) refers to the Fig. 2B logical design/physical design and to describe each table as being organized around major service relationships – instead of around major data relationships. It is noted there that such tables can be decomposed into a number of smaller and more efficient tables.

However, claim 165 requires, for example, including modules for accessing and managing a plurality of memory segments (e.g., see parent claim 161) and also including a collective attribute module for segregating collective attributes of entries

within a name space. It is not all clear how the cited passages in Harvey even relate to the claimed subject matter. Furthermore, the Examiner's attempt to rationalize the "obviousness" of the asserted combination of these two essentially unrelated references (Tenorio and Harvey) apparently quotes from the Murthy reference at 3:26-28 – a reference not even relied upon in this ground of rejection.

As to claim 166, the Examiner alleges that Harvey discloses including an X.509 certificate validation module for validating one or more certificate paths somewhere at Figs. 2A-2B, page 13, *et seq*. In this regard, the Examiner is asked for some assistance because the undersigned has been unable to find even the characters "X.509" anywhere in the cited passages of Harvey. Indeed, the undersigned is also unable to find the word "certificate" or the word "validation" anywhere in the cited passages.

The rejection of claims 154 and 197 under 35 U.S.C. §103 as allegedly being made "obvious " based on Tenorio in view of Hsu '664 is also respectfully traversed.

Here, the Examiner admits that Tenorio does not disclose any of the subject matter of dependent claim 154. To supply these many admitted deficiencies, the Examiner relies upon Hsu. While Hsu is, of course, related to data recovery, it does not appear to be related to recovery of a "directory transaction." The cited passage at 2:13-24 describes database transactions where a backup utility recovery manager stores database transactions and related user data in a number of files which may be used in the recovery of deleted data. The data file is a file that contains the most recent

version of the user data – i.e., reflecting changes from the last committed or performed transaction. Thus, if the last committed transaction performed included a delete function, then the user data in the data file will reflect that deletion. To undo the deletion, the standard backup and recovery utilities typically use other files containing previous versions of the deleted user data to perform a recovery. It is noted that the data file, however, might be used by the standard backup recovery utilities for comparison purposes after locating the deleted user data in another file.

None of this appears to have anything to do with a directory transaction and the storage of transaction data representing phases of a directory transaction – to allow recovery of the directory transaction.

The Examiner also relies upon Hsu at 7:32-44, *et seq*. However, this portion of Hsu relates to status records (e.g., schema-indexes containing administrative data or metadata that may be used by the database management system to determine the status of user data within the database). The text here mentions that the schema-indexes, status records, etc. correlate with a given set of user data such as user data contained within a table including one of the rows or one of the columns, etc. Each of the status records apparently contains one or more indications, references, addresses, pointers, flags and/or other notations so that the database management system, code 118, and/or other software applications may determine the status of the user data for example, when the status of the user data changes in the first virtual workspace (for

example, when the user data is deleted from a table, column and/or row) and at least one of the status records that correlates with the changed user data likewise changes, etc.

Once again, none of this appears to have anything to do with directory transactions, let alone directory transaction segments that are dedicated to the storage of transaction data representing phases of a directory transaction – to allow recovery of that directory transaction.

Once again, the Examiner's attempt to rationalize the asserted "obviousness" of this alleged combination appears to be a hindsight *non sequitur*. Why would the alleged combination have enabled the "overall system to recover user data in a database... independent of any standard backup and recovery utility" – and even if it would, what does the recovery of user data in a database have to do with the recovery of a directory transaction?

The rejection of claims 155-160, 163, 198-203 and 206 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Kagan '681 is also respectfully traversed.

Here, the Examiner admits that Tenorio does not disclose anything at all of the subject matter in dependent claim 155. To supply this admitted deficiency, the Examiner relies upon Kagan. However, Kagan is directed to a relational database

memory utilization analyzer. It does not appear to have anything at all to do with logical segments of memory storing data objects to be used by respectively corresponding different directory service modules in a directory system – each such segment including object attribute data needed by the corresponding directory service module to perform an intelligent service in response to an incoming request. Dependent claim 155 requires the system to include an adaptation component for automatically reconfiguring said memory segments on the basis of usage.

The Examiner asserts that such is found in Kagan at 4:29-31; 4:59-60, *et seq*. However, these cited passages merely reveal that Kagan has as one object of his invention to provide output data structural details for preselected data structures in a database, particularly details related to allocated and populated memory – and to output population data to thereby provide an indication of actual memory usage. These passages do not say anything at all about automatically reconfiguring memory segments – let alone relevant memory segments when claim 155 is properly construed in light of its parent claim 139 – and, indeed, in light of the fact that the applicants have claimed directory system subject matter – not a relational database memory utilization analyzer as described by Kagan.

The Examiner alleges that it would have been "obvious" to combine Tenorio with Kagan "since the combination would have enabled the overall system to use memory resources more efficiently and eliminate the cost of adding memory to enhance a

system." The Examiner does not explain how these two quite different systems can be "combined" or how even such a hindsight combination would result in the alleged advantage/motivation. Instead, it appears that the Examiner has simply copied a portion of the last sentence in the abstract of Kagan and asserted that this purported Kagan feature would apparently have been "obvious" in any other context – even completely afield from the relational database memory utilization analyzer actually described by Kagan.

With respect to claim 156, the Examiner once again tries to isolate the additional feature of claim 156 from its parent claim 139 recitations and to construe "memory segment" in isolation. Of course, the applicants have never claimed to be the first to store any kind of usage data in a memory segment. However, claim 156 requires the memory segments of claim 139 (i.e., in a directory service context) to include at least one adaptation segment dedicated to the storage of <u>adaptation data</u> representing the usage of the memory segments.

Here, the Examiner relies upon the abstract at lines 8-10, *et seq.* However, the Kagan abstract merely states that by identifying data population (thereby identifying unpopulated areas of memory versus simply making a determination of memory allocation without regard to how it is being used), utilities can be designed to recover memory resources, database management techniques can be revised to more conservatively allocate memory, etc. Nowhere here is there any mention of identifiable "memory seg-

ments" nor any mention of any "adaptation segment" nor, in fact, any mention of any memory segment dedicated to the storage of adaptation data representing the usage of said memory segments (i.e., memory segments cited in claim 139 in the relevant directory service context).

The Examiner's remaining comments concerning Kagan/Tenorio are similarly flawed with respect to other aspects of the other rejected claims.

The rejection of claims 164 and 207 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Langseth '980 is also respectfully traversed.

Here, the Examiner admits that Tenorio does not disclose generating notification data in response to modification of a monitored directory entry. Actually, claim 164 also requires that a monitoring module be included for monitoring one or more directory entries and for generating notification data in response to modification of a monitored directory entry.

To supply this admitted deficiency, the Examiner relies upon Langseth at 1:20-24, *et seq*. However, the cited section of Langseth merely states that users may subscribe to various channels of content and to specific services within each channel that are delivered when a predetermined condition occurs (e.g., based on a schedule, when an exception condition occurs, or in response to a specific initiation request).

There is nothing here about a monitoring module for monitoring one or more directory entries and for generating notification data in response to modification of a monitored directory entry.

In addition, the Examiner's only attempt to rationalize this allegedly "obvious" combination is to paraphrase a few words from the abstract of Langseth and then to assert that this would have provided motivation to the only ordinarily skilled artisan at the relevant time, and without hindsight, to make the combination. Actually, even if the combination is made, *arguendo*, the Examiner has not explained how it provides any relevant teaching with respect to the rejected subject matter.

The rejection of claims 176-177 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Cotte '048 is also respectfully traversed.

Here, the Examiner admits that Tenorio does not disclose any of the subject matter of dependent claim 176. To supply this admitted deficiency, the Examiner relies upon Cotte at paragraphs [0386]-[0389]. Actually, Cotte teaches merely a website having a caller recognition element such that upon accessing a web page, private communications between the caller and a specific entity associated with the webpage can be provided.

The cited paragraphs [0386]-[0389] describe a presence manager 213 which is responsible for tracking the current presence status (off-line, on-line, reachable, in

break, in conference, etc.) of website users. However, there is no mention here that the presence manager 213 could or even might be used as a user presence management component within the identity-based service component of a directory service (e.g., as required by parent claim 139). In other words, the Cotte teaching is in an entirely different context than the claimed subject matter of claims 176-177. Contrary to the Examiner's assertions, Cotte does not teach monitoring whether a user is using a directory. Furthermore, the asserted rationale for finding the combination "obvious" with Tenorio is illogical and/or a *non sequitur*. The Examiner asserts that the combination of Tenorio with Cotte would have been "obvious" so as to enable the overall system to realize advantages such as privacy, ease of use and/or data communications capabilities, offered by available communications environments. However, even if such combination is assumed *arguendo*, one would at best end up with a Tenorio electronic commerce system that permits private communications between a buyer and seller. Neither Tenorio nor Cotte teaches novel aspects of a directory system as claimed by the applicants.

The rejection of claims 178 and 221 under 35 U.S.C. §103 as allegedly being made "obvious" based on Tenorio in view of Langseth is also respectfully traversed.

Fundamental deficiencies of both of these references have already been noted above. Here, the Examiner admits that Tenorio does not disclose any of the additional subject matter of dependent claim 178. To supply this admitted deficiency, the

Examiner relies upon Langseth at 3:12-15, *et seq*. However, this portion of Langseth merely describes the delivery of spreadsheet programs, pager, telephone, mobile phone, fax, personal digital assistant, HTML e-mail, WAP device and other formats of information over a personal intelligence network. The fact that informational and transactional data may be loaded and formatted into a database is mentioned. The database is then said to provide a plurality of "channels" wherein each channel may comprise information and transactional data about a particular field of interest such as business, weather, sports, news, investments, traffic and others, etc. None of this appears to teach or suggest the subject matter of claim 178, wherein the message-based service component (i.e., of parent claim 139 in a directory system) includes a message transfer component that enables message attributes of said directory objects to be transferred to other directory objects. The undersigned is simply at a loss to understand any rational basis for the Examiner's assertions.

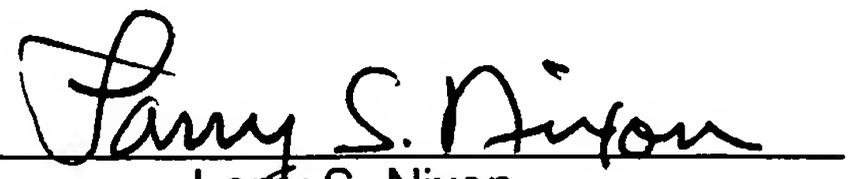
Nevertheless, the Examiner asserts that it would have been obvious to combine Tenorio and Langseth "since the combination would have enabled the overall system to deliver highly personalized and timely information at the right time when a predetermined condition occurs." This appears to be a paraphrase or quote (without disclosed quotation marks) from some object of Langseth. However, it has nothing to do with the subject matter of claim 178 which requires, *inter alia*, in the appropriate context, message attributes of directory objects to be transferred to other directory objects.

The Examiner has alleged Tenorio to anticipate certain claims (erroneously) and has then alleged that it would have been "obvious" to combine each of seven different references with Tenorio – all apparently without any hindsight in view of the applicants' own invention. However, it appears that the Examiner has used some sort of search engine acting upon words or phrases plucked from applicants' claims so as to find various other prior art references that are totally out of context and then to allege that various combinations would have been "obvious" without any hindsight at all at the relevant time. Furthermore, the alleged combinations appear nonsensical and without any logical basis. When one looks at the cited passages, one fails to find even the asserted subject matter.

Accordingly, this entire application is now believed to be in allowable condition, and a formal notice to that effect is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
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